

America, 1869, 397). Dr. Günther assumes that nearly one-third of the total number of species of marine fishes on the two shores of tropical America will be found to be identical. Hence he infers that there must have been, at a comparatively recent date, a depression of the isthmus, producing an intermingling of the two faunæ.

This discrepancy arises from the comparatively limited representation of the two faunæ at the disposal of Dr. Günther. He enumerates 193 marine or brackish-water species, as found on the two coasts, 59 of which are regarded by him as specifically identical—this being 31 per cent. of the whole. But in 30 of these 59 cases I regard the assumption of complete identity as erroneous, so that taking the number 193, as given, I would reduce the percentage to 15. But these 193 species form but a fragment of the total fauna, and any conclusions based on such narrow data are certain to be misleading.

Of the 71 identical species admitted in our list, several (*e. g.*, *Mola*, *Orycnus*) are pelagic fishes common to most warm seas. Still others (*e. g.*, *Trachurus*, *Caranx*, *Diodon*, sp.) are almost cosmopolitan in the tropical waters. Most of the others (*e. g.*, *Gobius*, *Gerres*, *Centropomus*, *Gallichthys* sp., &c.) often ascend the rivers of the tropics, and we may account for their diffusion perhaps, as we account for the dispersion of fresh-water fishes on the isthmus, on the supposition that they may have crossed from marsh to marsh at some time in the rainy season.

In very few cases are representatives of any species from opposite sides of the isthmus exactly alike in all respects. These differences in some cases seem worthy of specific value, giving us "representative species," on the two sides. In other cases, the distinctions are very trivial, but in most cases, they are appreciable, especially on fresh specimens.

I am therefore brought to the conclusion that the fish faunæ of the two shores of Central America are substantially distinct, so far as species are concerned, and that the resemblance between them is not so great as to necessitate the hypothesis of the recent existence of a channel across the isthmus, permitting the fishes to pass from one side to the other.

INDIANA UNIVERSITY, July 18, 1885.

NOTE ON SOME LINNÆAN NAMES OF AMERICAN FISHES.

By DAVID S. JORDAN.

In the current volume of these Proceedings (pp. 193-208) is a very useful "contribution to the stability of American ichthyological nomenclature," entitled "On the American Fishes in the Linnæan Collection," by Messrs. Goode and Bean.

Most of the changes suggested in this paper are well founded, and some of them have already been adopted by the writer from verbal statements of Dr. Bean. A few seem to need further discussion.

1. *Zeus gallus* L.

This species seems properly referable to the American species of *Selene*, although the reference to Willoughby belongs to an East Indian fish. The name *Selene gallus* should be adopted for our species, if it can be shown that it is not the *Zeus vomer*, with which it has been universally identified.

2. *Zeus vomer* L.

Goode and Bean say that this "is the species which has long figured in American writings as *Vomer setipinnis*, which must now be called *Vomer vomer*."

The grounds for this statement are not apparent. The *Zeus vomer* of the tenth edition is based on the *Rhomboida* of Brown, which is the *setipinnis*, and on the *Zeus cauda bifurca* of the Museum of Adolph-Frederick.

In the twelfth edition the reference to Brown disappears, while a few additional characters are added to the description, which still contains nothing positively distinctive.

I have at present no copy of the Museum Adolph-Frederick at hand, but it seems to me that the name *Zeus vomer* must go with the fish there represented. Cuvier says: "L'espèce de ce poisson n'est sujette à aucun doute, puisque Linnæus lui-même en a donné la figure dans le Musée d'Adolphe-Frédéric, pl. 31, f. 9;" and again, "Celle [la figure] de Linnæus (Mus. Ad. Fred., pl. 31, fig. 9) pêche par la rupture des filets de la première dorsale."

If this *Zeus vomer* of Linnæus is the species with falcate dorsal, as Cuvier has supposed, the name *vomer* is prior to that of *gallus*, and the two species in question should stand, as hitherto, *Selene vomer* and *Vomer setipinnis*. If the supposition of Goode and Bean be correct, they would be *Selene gallus* and *Vomer vomer*. The question seems to depend on the correct interpretation of the figure in the Museum Adolph-Frederick.

Pleuronectes plagiusa L.

The account given by Goode and Bean renders it doubtful whether our *Aphoristia* is really identical with the Linnæan type. Our species should in this case apparently stand as *A. fasciata* (= *Plagusia fasciata* Holbrook MSS., Dekay N. Y. Fauna Fishes, p. 304). The West Indian *Aphoristia ornata* seems to be distinct from the species found on our coasts, having the vertical fins black posteriorly, the body rather slenderer than in ours, the scales a little larger, and the fin rays rather fewer. It may be that this *ornata* is the original *plagiusa*.

Pleuronectes lunatus L.

This species was originally based solely on a figure of Catesby, representing *Platophrys lunatus*. In the twelfth edition the count of the fin-rays is added from the specimen sent by Garden, belonging to a different species.

Labrus hiatula L.

In suggesting the name *Hiatula hiatula*, for the tartog, Goode and Bean seem to forget that the *Labrus onitis* of the tenth edition, commonly and apparently correctly identified with the tautog, has priority over *Labrus hiatula* of the twelfth edition.

Perca rhomboidalis L.

In the tenth edition this name is based on the Pork-fish of Catesby, which is *Anisotremus virginicus* L. and on a *Sparus* of Brown (= *Diplodus unimaculatus*). The name *rhomboidalis* is borrowed from Catesby, and it is with Catesby's figure, I think, that the name *rhomboidalis* must go. In this view it becomes a synonym of the earlier *Sparus virginicus* L.

This species, "*Perca rhomboidalis*," gives place in the twelfth edition to a *Sparus rhomboides*, having the same synonymic references, but with a different description, taken from the specimen of *Diplodus rhomboides* sent by Dr. Garden. This specimen is properly the type of *rhomboides*, but not of *rhomboidalis*, and I see no reason why the former name should give way to the latter.

Perca guttata L.

This species was originally based on a number of references belonging to different species, with no indication either in the tenth or the twelfth edition that Linnæus possessed any specimen at all. One of these references certainly belongs to the species represented by the specimen examined by Goode and Bean, and possibly we are justified in accepting this specimen as the real Linnæan type; if so, the name *Epinephelus guttatus* may be used instead of that of *Epinephelus apua* (= *lunulatus* Poey).

Trigla evolans L.

This species is apparently identical with the *Prionotus sarritor* of Jordan and Gilbert.

Hæmulon arcuatum Cuv. & Val.

The specific name *plumieri*, which the writer and others have ineffectually attempted "to saddle on this fish" ever "since the time of Lacépède" (cf. Goode & Bean, p. 207), is based upon Lacépède's bad engraving of Aubriet's bad copy of a painting labeled "*Turdus aureo-cæruleus*," by Plumier. Lacépède's figure is certainly of little value; but Cuvier, who apparently had access to the original figure of Plumier, declares that "le père Plumier l'avait dessiné bien avant Catesby et Duhamel."

Of course, if this is the species which Plumier meant to represent, it should be called *Hæmulon plumieri*; if not, then *Hæmulon arcuatum* is its proper designation.

The badness of Lacépède's engraving, if Plumier's intention be admitted, has nothing to do with the question.

This species is certainly *not* the Margate-fish of Catesby, which is *Hæmulon gibbosum* (*album*).

INDIANA UNIVERSITY, July 26, 1885.